## Resilient Control For Smart Grid

**Description:**

This project focuses on weather-resilient smart grids. Drawing motivation from Texas power grid failure, we aim to study different kinds of weather hazards for example, tornados/hurricanes, earthquakes, forest fires, etc. and the specific scenarios that might affect a smart grid. We want to direct our analysis towards how each kind of extreme event uniquely impacts the smart grid and its ability to recover. Based on our findings, we plan to identify / design techniques that can be incorporated in smart grid design which mitigate the severity of losses incurred during extreme weather events and apply qualitative/quantitative measures to assess their effectiveness.

**Deliverables/Goals:**

| **Goal #** | **Timeline** | **Goal Description** |
| --- | --- | --- |
| 1 | Week 1 | Perform a case study on the 2021 Texas power grid failure, identifying weaknesses in the grid that caused the failure |
| 2 | Week 2, 3 | Find and analyze datasets that give insights on what kind of impact (along the lines of energy loss incurred in MWatts, number of consumers affected, etc.) do different natural disasters (atleast 5) have on power grids |
| 3 | Week 4, 5 | Propose an approach for resilient smart grids with corrective measures that can mitigate most of the above studied hazards. |

**Division:**

| Group Member Name | Goal # |
| --- | --- |
| Akhila | 1, 2 |
| Akanksha | 3, 1 |
| Mandar | 2, 3 |

**Suggestions offered by Professor**:

1. Focus on one hazard and make it more specific
2. Wrap up Goal #1, 2 sooner and focus on #3 for more time
3. #3 should be done before and then analyze how efficient it is based on historical data?
4. Pick a paper and improve it to some extent